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Siemens Corporation
Intellectual Property Department
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EXAMINER	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HOWARD CHARLES DUNCAN MATTSON,
DOUGLAS JOSEPH KING, and PAUL JONATHON SANDERS

Appeal 2017-004689[1, 2]
Application 14/229,029
Technology Center 2100

Before: JAMES R. HUGHES, ERIC S. FRAHM, and
JOYCE CRAIG, *Administrative Patent Judges*.

HUGHES, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134(a) of the Examiner's Final Rejection of claims 1, 3–8, 10–15, and 17–20 which constitute all the claims pending in this application. Claims 2, 9, and 16

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[1] According to Appellants, the real party in interest is Siemens Product Lifecycle Management Software Inc. App. Br. 4.

[2] The application on appeal has an effective filing date of Mar. 28, 2014, and has no parent applications. Therefore, the Leahy-Smith America Invents Act (AIA) amendments to the U.S. Code (§§ 102, 103) are applicable. *See* MPEP § 2159.02: "AIA 35 U.S.C. 102 and 103 took effect on March 16, 2013. AIA 35 U.S.C. 102 and 103 apply to any patent application that contains or contained at any time a claim to a claimed invention that has an effective filing date that is on or after March 16, 2013."

have been canceled. Final Act. 1–2; *see also* App. Br. 1.[3] We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

Appellants' Invention

The invention at issue on appeal concerns computer-aided design (CAD) systems and Product Data Management (PDM) systems, including computer-readable media, systems, and methods for product data management. The method receives a CAD model containing a number of "elements" (individual components) having a number of distinct "features," receives a CAD operation to be performed on the elements, edits the one of the elements by performing a variational solve on the element according to the CAD operation, and calculates non-variational CAD operations to be performed on the remaining elements without performing a variational solve on the remaining elements. Spec. ¶¶ 1, 3, 34–37; Abstract.

Illustrative Claim

Independent claim 1, reproduced below, with the key disputed limitations emphasized, further illustrates the invention:

> 1. A method for product data management, the method performed by a data processing system and comprising:
>
> receiving a CAD model with a plurality of elements, each element having a plurality of features;

[3] We refer to Appellants' Specification ("Spec.") filed Mar. 28, 2014; Appeal Brief ("App. Br.") filed July 1, 2016; and Reply Brief ("Reply Br.") filed Jan. 24, 2017. We also refer to the Examiner's Answer ("Ans.") mailed Dec. 14, 2016, and Final Office Action (Final Rejection) ("Final Act.") mailed Dec. 15, 2015.

receiving a CAD operation to be performed on the plurality of elements;

performing a variational solve on a first one of the plurality of elements according to the CAD operation to produce an edited first element;

calculating corresponding non-variational CAD operations for the remaining plurality of elements according to the edited first element and a relationship between the edited first element and the remaining elements to produce an edited plurality of elements, without performing a variational solve on the remaining elements; and

storing the edited first element and the edited plurality of elements in the CAD model.

Rejections on Appeal

1. The Examiner rejects claims 1, 5, 8, 12, 15, and 19 under 35 U.S.C. § 103 as being unpatentable over Duncan Mattson et al. (US 2012/0078582 A1, published Mar. 29, 2012)("Duncan Mattson") and M. Hoffman, et al., *Decomposition Plans for Geometric Constraint Systems, Part I: Performance Measures for CAD*, 367–408, Academic Press (2001) ("Hoffman").

2. The Examiner rejects claims 3, 4, 6, 7, 10, 11, 13, 14, 17, 18, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Duncan Mattson, Hoffman and Jayaram et al. (US 2002/0123812 A1, published Sept. 5, 2002)("Jayaram").[4]

[4] In the Final Office Action, the Examiner did not list Hoffman in the statement of the rejection. Final Act. 5. The Examiner noted this error and corrected it in the Examiner's Answer. Ans. 10; *see* Advisory Action (mailed Apr. 12, 2016), p. 2. Appellants contend Hoffman is not part of the rejection due to the Examiner's typographical error. App. Br. 43; *see also* Reply Br. 34. We find the Examiner's typographical error to be harmless.

ISSUE

Based upon our review of the administrative record, Appellants' contentions, and the Examiner's findings and conclusions, the determinative issue before us follows:

Does the Examiner err in concluding that the combination of Duncan Mattson and Hoffman collectively would have taught or suggested

> performing a variational solve on a first one of the plurality of elements according to the CAD operation to produce an edited first element; [and]
>
> calculating corresponding non-variational CAD operations for the remaining plurality of elements according to the edited first element and a relationship between the edited first element and the remaining elements to produce an edited plurality of elements, without performing a variational solve on the remaining elements

within the meaning of Appellants' claim 1 and the commensurate limitations of claims 8 and 15?

ANALYSIS

The 35 U.S.C. § 103 Rejection of Claims 1, 5, 8, 12, 15, and 19

The Examiner rejects independent claim 1 as being obvious over Duncan Mattson and Hoffman. *See* Final Act. 2–5; Ans. 2–9. Appellants contend that Duncan Mattson and Hoffman do not teach the disputed features of claim 1. App. Br. 16–24; Reply Br. 9–22. Specifically, Appellants contend that "[t]here is no showing by the Office Action of any

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We, therefore, use the statement of rejection from the Answer (Ans. 10) for clarity and consistency of the record.

CAD model in [Duncan] Mattson that has a plurality of elements, each element having a plurality of features" (App. Br. 19) and Duncan Mattson "does not teach or suggest any process that uses a variational solve to edit one element then performs a corresponding nonvariational operation on other elements according to a relationship between the elements." (App. Br 18).

We agree with Appellants that Duncan Mattson does not disclose the disputed features of claim 1. Our decision is predicated upon a proper construction of the term "element" in Appellants' claim 1. Here, Appellants utilize an element to mean a component (*see* Spec. ¶¶ 30, 34; Figs. 2A, 3A (elements 306)) and a plurality of elements to mean multiple identical or nearly identical components. The Examiner, on the other hand, construes element to mean a characteristic or detail of a component — "i.e.[,] vertices, edges and faces" of component (Ans. 5). The Examiner's interpretation of element, however, is too broad and not consistent with the use of "element" in Appellants' Specification.

The Examiner cited portions of Duncan Mattson (*see* Final Act. 3–5; Ans. 2–9 (citing Duncan Mattson ¶¶ 4, 5, 72, 77; Figs. 4A–4H, 5A–C, and 6A–6B)) that only describe performing CAD operations on a portion of a single component and do not describe performing CAD operations on multiple identical or nearly identical components (elements) in a larger model. *See* App. Br. 19–22. At most Duncan Mattson describes performing a variational solve on a portion of (feature of) an element (component) and performing non-variational operations on other features (removing and re-inserting features) to produce a final edited version of a component (an element). *See* Duncan Mattson ¶¶ 4, 5, 51–64; Figs. 4A–4H, and 5A–C.

Consequently, we are constrained by the record before us to find that the Examiner erred in finding the combination of Duncan Mattson and Hoffman teaches the disputed limitations of Appellants' claim 1, independent claims 8 and 15 that include features of commensurate scope, and dependent claims 5, 12, and 19, which depend from claims 1, 8, and 15, respectively. Accordingly, we reverse the Examiner's obviousness rejection of claims 1, 5, 8, 12, 15, and 19.

The 35 U.S.C. § 103 Rejection of Claims 3, 4, 6, 7, 10, 11, 13, 14, 17, 18, and 20

The Examiner rejects dependent claims 3, 4, 6, 7, 10, 11, 13, 14, 17, 18, and 20 as being obvious over Mattson, Hoffman and Jayaram. *See* Final Act. 5–7; Ans. 9–14. The Examiner did not assert, and we do not find, that Jayaram cures the deficiencies of the Duncan Mattson and Hoffman combination (*supra*). Appellants' dependent claims 3, 4, 6, 7, 10, 11, 13, 14, 17, 18, and 20 depend from claims 1, 8, and 15, respectively.

Accordingly, we are also constrained by the record before us to find that the Examiner erred in concluding Mattson, Hoffman and Jayaram teach the disputed limitations of Appellants' claims 3, 4, 6, 7, 10, 11, 13, 14, 17, 18, and 20 for essentially the same reasons as claim 1 (discussed *supra*). Accordingly, we reverse the Examiner's obviousness rejections of claims 3, 4, 6, 7, 10, 11, 13, 14, 17, 18, and 20.

CONCLUSION

Appellants have shown that the Examiner erred in rejecting claims 1, 3–8, 10–15, and 17–20 under 35 U.S.C. § 103(a).

DECISION

We reverse the Examiner's rejections of claims 1, 3–8, 10–15, and 17–20.

REVERSED